UNITED STATES PATENT APPLICATION

INTERNET SERVICE CONTROLLER WITH REAL TIME STATUS DISPLAY

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Cross Reference to Related Applications

This application claims priority to Provisional Application Serial No. 60/211,680, entitled "INTERNET SERVICE CONTROLLER WITH REAL TIME STATUS DISPLAY," filed on June 15, 2000, the content of which is incorporated by reference herein.

INTERNET SERVICE CONTROLLER WITH REAL TIME STATUS DISPLAY

Field of the Invention

This invention relates generally to the provision and display of

5   information, and, in particular, to a system and interface on a personal computer (PC) or

other visual display device, which aggregates multiple services from multiple service

providers and is periodically updated to include current up-to-date information related to

items that interest the user.

Background of the Invention

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The Internet has considerably improved the accessibility of information or

"content" for users on a global scale. Specifically, the Internet's World Wide Web

(WWW) allows a user to access a universe of information that combines text, audio,

video, graphics and animation within a hypermedia document. Initially, the WWW was

15   developed to provide researchers and scientists with a system that would enable them to

quickly access all types of information with a common protocol. Recently, the general

public has embraced the WWW as the ideal forum for accessing and distributing all types

of content such as in the entertainment, business, legal, medical and related areas.

Communication with others on a worldwide scale has also dramatically improved with

20   the advent of improved electronic mail, messaging and conferencing services.

While this global access to almost limitless content and communication on

the WWW has its obvious benefits, it also has some serious shortcomings. The sheer

number of different content and service providers and the peculiarities of each distinct

system can make accessing and utilizing the Web extremely difficult. Different systems

25   have different launching, accessing, browsing and authentication procedures that can

make even a simple login procedure somewhat cumbersome. Furthermore, the content

on the WWW is ever changing requiring a user to constantly log in to check on updates

and verify the status of information or communications.

        Accordingly, it would be desirable to have a system and user interface by

30   which multiple information, content and service providers may be easily accessed and

viewed on a user's display on a real time basis.

Summary of the Invention

        The present invention provides a service controller system with real time

35   status updates. The system includes a plurality of information and service providers,

such as electronic mail providers, messaging systems, content providers and the like.

This plurality of information and service providers is in communication via the Internet

with a proxy multiplexor that collects and aggregates information and content from these

plurality of information and service providers. The information and content received by

40   the proxy multiplexor is transmitted to an end user service control component that

includes a display portion having a plurality of service provider icons therein. Each icon

represents a unique information and service provider that the user has selected.

        In one embodiment of the present invention, each of the icons includes a

real time status display for updating the user on a real time basis. The end user service

45   control component is operated in cooperation with the user's browsers through which

new services may be created and existing services viewed and modified. Through the

end user service control component, services may be launched simply by clicking on the

icon associated with the service the user wishes to access. A single authentication

procedure is implemented for the user through the system so that multiple authentication

50   steps are unnecessary.

In the present system, the user is updated as to status changes within each

service represented in the end user service control component. The user may be updated

as to changes in news, as to new electronic mail messages, stock quote updates, buddy

lists and any number of information sources the user has specified. Updating may be

55   done by simply providing to the user information within the end control module or the

updating may be performed more actively such as by alerting the user by visual and/or

audio alerts within the system.

One embodiment of the invention includes a computer readable medium

having a computer program encoded thereon. The medium includes at least three

60   portions. A first portion contains a program segment for facilitating the selection of

preferences for information to be displayed as part of a service controller. A second

portion contains a program segment for receiving over a communication network

information from a plurality of service providers in accordance with the selected

preferences. Finally, a third portion of the medium contains a program segment for

65   displaying the information within the service control component. In the display, at least

one of the plurality of service providers is represented in the service control component

by a unique icon that includes real time status updates.

In that embodiment of the invention, a proxy multiplexor may aggregate

the information received from the plurality of service providers. The service control

70   component may configured in conjunction with a browser. It may be an embedded

control bar, or may be an independent display object. The unique icon may be selectable by the user to retrieve additional information from a corresponding one of the service providers.

In another embodiment of the invention, a service controller system for integrating information from a plurality of service providers includes a proxy multiplexor that receives information from the plurality of providers. The proxy multiplexor aggregates the information from the plurality of providers. The system also includes an end user service control component that receives information from the proxy multiplexor. Each respective service provider is represented by an individual icon within the end user component, and at least one of the icons displays the most current information received from its associated provider.

At least one of the plurality of providers may be an HTTP server. The end user component may integrated as part of a browser, or may be a stand-alone object. The system may permit new providers to be added for display in the user's end user component via a centralized server, which may be an HTTP server having SSL capabilities.

The service controller system may further include a second end user component having individual icons representing other service providers. In that case, both end user components receive information from the proxy multiplexor. Furthermore, the individual icons may be selected to retrieve additional information from the corresponding service providers.

One embodiment of the invention is service controller system that includes a plurality of service providers that provide information and content to a plurality of

users. A proxy multiplexor for each of the plurality of users receives information and

95   content from the plurality of providers. Each proxy multiplexor aggregates the

information and content from the plurality of providers for each user. The system also

includes an end user control component that continuously receives updated information

and content from the proxy multiplexor. Each respective provider is represented by an

individual icon within the end user component, and each individual icon is updated

100   whenever new information is provided from the respective service provider associated

with that icon.

The end user component of that system may include a display portion that

contains the provider icons. The end user component is integrated as part of a Web

browser, or may be a stand-alone display object. The system may permit new providers

105   to be added for display in the user's end user component via a centralized server, which

may be an HTTP server having SSL capabilities. The proxy multiplexor may be an

executable running on a user's machine. Each individual icon is updated without action

required of the user, and may provide an alert to the user when updated with new

information.

110   In yet another embodiment of the invention, a method for displaying

content from a plurality of service providers as part of a service control component

includes receiving a selection of preferences from a user for receiving and displaying the

content. The content is then received over a communication network from the plurality

of service providers in accordance with the preferences. The content is then displayed in

115   accordance with the preferences. The service providers are represented in the service

control component by unique icons that include real time updates including at least some of the received content.

These and other advantages of the invention will be apparent to those of ordinary skill in the art by reference to the following detailed description and the

120   accompanying drawings.

Brief Description of the Drawings

FIG. 1 illustrates an exemplary configuration of a user service controller and launcher in accordance with the teachings of the present invention.

125   FIG. 2 is a block diagram illustrating the operation of the user service controller in accordance with the teachings of the present invention.

FIG. 3 is a block diagram illustrating the operation of the proxy multiplexor in accordance with the teachings of the present invention.

FIG. 4a illustrates an exemplary user service controller in accordance with

130   the teachings of the present invention.

FIG. 4b illustrates a more detailed view of the exemplary user service controller in FIG. 2a.

FIG. 5 illustrates another embodiment of a user service controller in accordance with the teachings of the present invention.

135   FIG. 6 illustrates an exemplary login screen for use with the present invention.

FIG. 7 is a block diagram illustrating a method for initiating a new service according to one embodiment of the invention.

140   **Detailed Description**

Referring now to FIG. 1, there is shown an exemplary configuration of a

service control system 10 in accordance with the teachings of the present invention. The

service control system 10 integrates personalized information obtained from a variety of

user-specified services and information providers. The user-specified services and

145   information providers may be one of any number of content providers, ISP's, Websites,

electronic mail providers, networking, remindering, authenticating and other Internet-

related services. The service control system 10 provides up-to-date real-time information

directly to the user without requiring the user to navigate through a series of different

authentication, accessing and networking steps. The present invention provides easy

150   accessibility and browsability of different databases of services and applications, direct

launching of applications and services, administers unified authentication to various

services, facilitates provisioning of new services, allows dynamic control of a wide

variety of communication devices and systems, provides continuous status indication of

various services and provides alarms and alert signaling of important user-specific events.

155   Referring again to FIG. 1, the system includes a plurality of service

providers 20, 30, 40 and 50, a communication network 60, such as the Internet, a proxy

multiplexor 70, an end user service control component 80 and a browser 90. In the

preferred embodiment, the end user service control component 80 is code running within

the browser 90. Alternatively, the service control component may be a stand-alone

160   executable running on a user machine. The service providers can be operated by

individual companies/entities, one of which can be the ISP 20 that is providing the local

access service to a user. The other service providers may be providers of any type of

information and content, and/or providers of communication and message management

services, such as electronic mail, chat, instant messaging, network authentication,

165   alerting, remindering and other related services. Typically, those service providers are

implemented on servers supporting conventional public transport layer network protocols

such as Hypertext Transfer Protocol (HTTP) (see R. Fielding et al., "Hypertext Transfer

Protocol—HTTP/1.1," IETF RFC 2616, Networking Group, 1999, which is incorporated

in its entirety by reference herein) and Simple Mail Transfer Protocol (SMTP), and/or

170   supporting proprietary protocols such as AOL's Instant Messaging Protocol (AIM). Such

servers typically support secure socket layer (SSL) encoding (see Freier et al., "The SSL

Protocol Version 3.0," IETF Internet Draft Specification (Nov. 1996), found at

http//home.netscape.com/eng/ssl3/index.html, which is incorporated in its entirety by

reference herein). Status messages from each of the service providers are passed or

175   "pushed" to the proxy multiplexor 70 and then passed on to the end user service control

component 80. If the service is run as a URL, then the corresponding server can also be

used to support that traffic. In one embodiment of the invention, at least one of the

service providers is a server for administering the system of the present invention. That

server may handle the provision and creation of services for each individual user as well

180   as other administrative functions such as password and authentication control.

In the present invention, the proxy multiplexor 70 assembles and

integrates the data and information received from the plurality of service providers 20,

30, 40 and 50. In a preferred embodiment, the proxy multiplexor 70 is a separate

executable running on the end user's machine. In other embodiments, the proxy

185   multiplexor 70 may be centrally located such as on a remote central server or even

coupled with the system server as discussed above. In the present invention, the proxy

9

multiplexor 70 controls the flow of information, such as status of messages and electronic

mail, to the service control component 80, which is eventually forwarded to each user's

personal service control display within the service control component, as discussed in

190　more detail later herein. The proxy multiplexor will also handle user authorization duties

for each respective service/provider represented in the service control component.

Typically, the proxy multiplexor 70 will receive data sent using HTTP or another data

transfer protocol by each respective service/provider. The proxy multiplexor 70 will be

in communication with the service control component so as to provide any update

195　information or data to the service control component. In the service control display, each

of the service/provider icons can then be animated and/or visually updated by the changes

provided from the services/providers.

Connections between the proxy multiplexor 70 and the respective service

providers 20-50 are established by opening network connections in accordance with the

200　network protocol being used; e.g. HTTP. Those connections, as well as the connection

between the proxy multiplexor and the service control component 80, occupy open file

descriptors/sockets available within the user machine environment. If the number of

available open file descriptors/sockets required to connect to the selected services is in

excess of the maximum permitted by the user machine environment, some or all of the

205　services will be opened, monitored and closed in accordance with the method described

below.

The proxy multiplexor may also handle "cookie" requests in the network

traffic to the user's browser. Those requests are used to handle the equivalent of user

login to the service. Preferably, most network traffic will be encrypted using SSL or

210   other similar encryption techniques.

Referring now to FIG. 2, a process is described wherein the end user

service control component monitors incoming data and updates its display accordingly.

The service control component is started (step 210) either by manual invocation by the

user, or automatically as part of a user machine start-up script or other automatic

215   launching. Where the service control component is part of the browser, it may be started

automatically upon start-up of the browser or start-up of the operating system. The user

control component may require user input of a single password as described below with

reference to FIG. 6.

The service control component initiates the proxy at step 220. If the proxy

220   is not yet running and is installed to run on the local user machine, the service control

component launches the proxy. If the proxy is to run on a remote machine, the service

control component tests the connection to the proxy and verifies that the proxy is running

and ready to receive commands.

Once communication with the proxy is established, the service control

225   component sends a message to the proxy at step 230 requesting that the proxy get status

updates from the services to be represented by the icons in the user interface. In response

to the request from the service control component, the proxy sends messages to each of

the represented services as described below with reference to FIG. 3, verifying the user's

identity and receiving an initial set of status data to be displayed by the service control

230   component. The proxy then forwards that status data to the service control component,

which displays the icons (step 240) including the status data.

The service control component processes any input received from the user at step 250. One or more defined user actions will have predictable results within the service controller. For example, if an icon in the end user controller is "left-clicked", the

235   icon is selected. If the icon is left "double-clicked", the service represented by the icon is launched and can then be viewed within, for example, the active window region 432 (FIGS. 4a and 4b) of the browser. If the icon is right clicked, a listing of relevant operations such as "delete, preferences and change display" may be provided and if the icon is "moused-over", a display of help, general and real-time status display may be

240   provided to the user. Furthermore, the icons may be dragged and dropped within the service controller display or the icons may be switched between other instances of the service control component, such as a "torn-off" instance of the service control component. As used herein, a "torn-off" instance is an instance created by performing a "drag and drop"-like operation with a pointing device such as a mouse. The operation

245   creates a new, free-standing copy or instance of the service control device.

The service control component continuously checks for status updates (step 260) that may become available from the proxy. If no updates are available, the service control component continues looking for user input (step 250) and for status updates from the proxy. If a status update is available, the service control component

250   processes that data (step 270) and changes the graphical representation of the service (step 280) in accordance with the processed update data. For example, in the case of a service icon displaying stock prices, the prices displayed within the icon would be changed according to the update data. Processing and displaying may also include such functions as showing the prices in red if the price has decreased and showing the price in

255   green if the price has increased. After the graphical representation of the service has been

updated, the service control component returns to looking for user input (step 250) and

for status updates from the proxy (step 260).

In an exemplary method according to the invention shown in FIG. 3, a

proxy processes a status request from the service control component and returns updated

260   data. The proxy receives a message (step 310) from the service control component to

update the status data. The message may contain a list of URL's or other addresses of the

services represented by icons in the service control component's user interface. If no

network connection previously exists, the proxy opens a secure network connection to

each of the named service providers (step 320). In the case where HTTP1.1 protocol or a

265   later version is being utilized, the network connection remains open to receive multiple

HTML pages or other data formats containing status update data. The connection

furthermore preferably utilizes HTTPS (secure HTTP) protocol.

In a preferred embodiment of the invention, personal administrative data

to be exchanged with the service providers are stored in "cookies" that are accessible to

270   the proxy. The proxy administers a file containing cookies received from the individual

service providers as well as one or more cookies created by the service control and

containing personal data in a specific format for use in signing up with a new service.

The proxy looks up one or more service-specific cookies (step 330) containing a user

name and password that are used by the user in accessing an individual service. Because

275   that cookie is specific to an individual service provider, a service provider may establish

user names and passwords according to its own policies, and need not conform to generic

standards established by the service control. Because the user name and password are

13

stored as cookies accessible to the proxy, the user need not enter that data each time the

service is accessed, allowing the user to conveniently access and keep updated a large

280   number of services as represented by the icons in the user interface. Once the proxy

locates a cookie, that cookie is transmitted via the HTTPS connection to the service. In

accessing and transmitting the cookies for a particular service, the proxy actively shields

activity pertaining to that service from the other services. As the services receive the ID

and password cookie(s), the services verify the identity of the user and may notify the

285   proxy of that verification. If the ID and password are found to be missing or invalid, the

service provider may deny access and return to the proxy a message indicating that the

user account is expired, unknown, closed, etc.

The proxy at step 335 sends a secure HTTPS request to each selected

service via an HTTPS "GET" message, requesting updated status data. The request may

290   be in a form that is standardized among the service providers, although the request may

alternatively be service-specific so that special content or formatting unique to a service

provider may be requested. For example, a request to a stock quotation provider may

contain the individual stock symbols for which a quote is to be displayed. In another

example, a request to a weather service may contain a location of the weather forecast

295   desired.

After updated status data has been requested, the proxy at step 340

monitors the network connection to the service provider for updated information. If no

updated status data is available (step 345), the proxy continues to monitor the open

network connection(s). If updated status data is available, the proxy forwards that data to

300   the service control component (step 350) for display in the corresponding icon.

In a preferred embodiment of the invention, a user may select a particular icon within the service control component user interface in order to display additional information from the corresponding service provider. For example, a user may select the weather service provider to display an HTML page from which a weather map is

305 accessible. Upon selection of an icon by the user (by, e.g., double clicking), the proxy sends a message to the service provider through the already-open network connection requesting additional information (e.g., the service provider's home page). That information is preferably received and displayed to the user by a browser residing on the user's machine. The user may then interact with the service provider using standard

310 browsing techniques such as selecting HTML buttons or transmitting entered data to the service provider.

Referring to FIGS. 4a and 4b, the end user's service control component may be run as a sidebar attached to the user's browser, or as an independent graphical device or object as shown in FIG. 5. In a preferred embodiment, the user's service

315 control component 410 includes a display portion 414 that contains a number of icons, such as icon 418, each of which represents one or more distinct service providers, such as providers 20, 30, 40 and 50 shown in FIG. 1. Clicking on one or more of the service icons within the end user service control component display 414 will activate and/or launch the respective service represented by the icon. In the end user service control

320 component, services may be represented by URLs or they may executable files. If the service is represented by a URL, the URL is passed to the user's preferred browser. If the service is an executable file, then the program is simply run or executed on the user's machine.

Referring again to FIGS. 4a and 4b, the service controller 410 is integrated

325   within a generic World Wide Web (WWW) browser 420. The browser 420 typically

includes a location active region 424 where the URLs appear and may be edited or typed.

Below the location active region 424 is a row of interactive buttons 428 that help

navigate the WWW, and below the row of interactive buttons 428 is the active window

portion 432 of the browser 420. Active window portion 432 is where Web pages, e.g.

330   hypertext markup language files, are displayed. Most hypertext markup language files

have interactive regions, usually highlighted and/or underlined text or graphics, which if

selected send a request to an attached server for a next HTML file of information. The

respective service providers selected by the user may be viewed and accessed within the

active window portion 432. In a preferred embodiment of the invention, the browser is

335   also used in the provisioning process for the creation of new services, such as through a

dedicated HTTP service provider. Newly announced services may be displayed in the

active window portion 432. Selecting those services may result in a tour of the service

being "played."

Referring again to FIGS. 4a and 4b, adjacent to the active window portion

340   432 is situated the service controller display 414. As shown, a plurality of icons 418 is

contained within the display area of the service controller, preferably without interfering

with or covering each other. Each of the display areas contains different information,

relating to topics selected by the user, including, in this example, AT&T One Mail, an

Instant Messenger service, and other messaging services. The information displayed in

345   the display areas is up-to-date, since it was recently obtained from the respective

service/provider, as discussed later herein, and it is customized, in that the information

within each of the areas was selected by the user and set forth in his or her profile. As the

data is updated, the service controller remains active and is not interrupted. Numerous

variations of the service control display as an attached bar are possible; for example, the

350   service controller display may be configured to be overlaid upon the active window

portion 432 of the browser 420 or the service controller may be placed at the top, bottom,

or right side of the user's screen as desired by the user. The service control display may

also be an independent top-level window as described below with reference to FIG. 5

Within the service controller display 414, the service provider icons 418

355   perform a number of functions for the end user, namely, each icon will identify the

availability of the respective service to the user, launch the associated service represented

by the icon and display in real time the status of the associated service. The icons

respond to defined actions as described above.

In the present invention, each icon provides a real time status display of

360   information selected by either or both the service provider and user. A user may be

alerted to information within each service provider by one or more animated

configurations of an icon. For example, "roll over", "drag and drop" and "status"

animations may be used within the system to designate a change in state within the

system, such as new timely updates to an icon's information and/or to draw attention to

365   the critical aspects of a task. For example, the "roll over" animation may be used to

identify when the user's cursor enters the active zone of the icon. If the cursor hesitates

over the field of the icon, a small window will display which has a brief description of the

service or a status detail. The "drag and drop" animation indicates that a specific icon

has been grasped and is being dragged by a user. The "status" animation may be used as

17

370   event messages that interrupt the user at a level of intrusion determined user settings and

by the urgency of the alert, such as if the user has received new electronic mail or the

user's "buddy" is online. Some of those messages may be delivered without any

behavior required on the part of the user. For example, information displayed within an

icon may be automatically updated, or the messages may be delivered in an alert fashion,

375   such as by having the system beep or alert the user in some other fashion as to the

message. In another example, an icon in the system may flash intermittently if a person

specified by the user has just logged on to the Internet.

Referring now to FIG. 5, the end user service control component may be

run as an independent device-like object or stand-alone application that may be opened

380   on a user's desktop or display device. In a preferred embodiment, the end user service

control component 510 includes a display portion 514 that contains a number of icons,

such as icon 518, each of which represents one or more distinct service providers, such as

providers 20, 30, 40 and 50 shown in FIG. 1. Clicking on each of the service icons

within the display portion 514 will activate and/or launch the respective service

385   represented by the icon. In the end user service control component 510, a service may be

represented by URLs or it may be an executable file.

In one embodiment of the present invention shown in FIG. 6, the service

control system may also include an authentication component via a unified password

system. In the present invention, a unique identity is created for each user of the service

390   controller system. Thus when a user wishes to log in to any of the services in her

personal portfolio, she will not have to explicitly log in to different services, using a

variety of different paths. The user will simply have to use her system password to

18

interface with each of the different service providers. For example, in an exemplary

display 600, the user is allowed to use her electronic mail (email) address 610 as her

395 login ID along with a single password 620 to access any one of the many services

accessible from her respective service control component. A user's single password may

be chosen by a user by clicking on the link "Click here!" 630 that may be associated with

a system server 20 as previously discussed herein. In a preferred embodiment where a

user operating system requires a login ID and password, the service control uses that

400 authentication as authentication for the service control.

In another aspect of the invention, a user may initiate or "sign up" for a

new service as shown in FIG. 7. Links to new services may be presented to the user

through a services announcement page that appears each time a user opens the service

controller. Alternatively, the links may be presented to the user as pop-up pages

405 presented according to some marketing or other plan. An advantage of the present

invention is that accounts with new services may be initiated without tedious input of

personal sign-up data in the particular format required by the new service provider;

instead, such data is stored once in a format recognizable to all available service

providers, and transmitted to each service provider in the "sign-up" procedure described

410 below.

To sign up for a new service, a user selects that service (step 610) through

the browser using a "sign-up" or "new service" link found in a services announcement

page or elsewhere. The browser at step 620 forwards the new service link to the proxy.

The proxy is able to identify the link as a new service link by finding it in a look-up table,

415 by filtering for identifiers contained in the link, or by having the service return a redirect

link forcing another page to be loaded. The proxy is therefore able to determine (step 630) that the link is a new service link and to treat the new service link differently from other links forwarded to it by the browser.

The proxy at step 640 retrieves and forwards a "sign-up" cookie to the

420   new service provider together with an HTTPS request. The sign-up cookie contains data identifying the proxy as a legitimate proxy offering the service to a user through a service controller system. In response, the new service provider at step 650 sends to the proxy one or more cookies containing the ID and password to be used by the user in accessing the new service. Those cookies are stored at step 660 by the proxy for use each time the

425   service is used by the user.

The proxy at step 670 retrieves one or more user data cookies and forwards them to the new service provider. The user data cookie(s) contains the user's personal data needed by the new service provider to open a new account with the user. In the preferred embodiment, all available service providers have agreed to a standard

430   format in which the user's personal data is contained in the user data cookie. For example, the cookie may contain the user's name, home address, billing address, email address, and a payment method such as a credit card. In that way, the user is not required to retype and submit that information each time the user registers for a new service.

An instance of the service control component may be opened by a user by,

435   for example, double-clicking an icon. Alternatively, an instance of the service control component may be opened automatically when the browser is opened, or when a user machine is booted. Furthermore, as is known in the art, a user may create additional instances of the control by "tearing off" graphics provided for that purpose using a

pointing device. Each instance of the control as used herein includes a number of unique

440   icons representing service providers, and each instance contains a page number

differentiating it from other instances of the control. Only one copy of a particular page

may be visible, so only one icon for each service provider is visible at any time. Multiple

instances of the control on a single screen share code and share a single socket

connection to the proxy.

445   When an instance of the service control containing a page of service

provider icons is opened, the service control sends a message to the proxy as described

above requesting updates on the services represented by the icons. In response, the proxy

opens an HTTP1.1 connection for each such service, requests status updates and then

monitors the open connections for status update data. As defined herein, information in

450   an icon that is updated as information becomes available from the service provider is

updated in "real time."

              It is possible that the number of available open file descriptors/sockets as

defined by the user's operating system may be insufficient to handle connections to all

service providers appearing on all instances of the service control. In that case,

455   connections to certain service providers must be closed while other service providers are

monitored for updated information. As currently implemented, pages of services are

closed at predetermined time intervals. The intervals may be hard coded or may be set by

the user.

              Various strategies may be implemented for determining which page to

460   close as new socket connections are required. In a currently preferred embodiment, the

first and several of the last pages to be accessed are never closed, and a page from the

remaining pages is randomly selected and closed each time a page is needed. In that way, the first page, which is often an important page, and the last few pages, which are often the most currently relevant, are updated as often as possible.

465   Generally speaking, a user may utilize the present system to organize, arrange, access and launch service providers in any number of fields such as electronic mail, traffic, weather, financial information, entertainment information, etc. Other information may also be provided, depending upon the types of information that are available from information providers and thus can be offered to users of the system.

470 Typically, each user will create his own personal "profile" specifying (a) the categories or types of information services that are to be provided to that user, and (b) for those information services, the parameters that are associated with the desired information. For example, a first user may desire traffic, financial and sports information, a second user may desire weather and news information, and a third user may desire traffic, news and

475 weather. For each of those three users, the detailed information desired may be different. Thus, the first user may desire traffic information for certain roadways, financial information for certain securities, and sports information for particular teams. The second user may desire to obtain some of the same types of information, but the details may be different. In the present example, the second user may desire local news and

480 weather for City X, while the third user may desire news and weather for a different location, City Y. The various user profiles are then administered either by the individual proxy multiplexors on the user machines, or through a server that is communication with each user's proxy multiplexor.

In the present invention, the service control component 80 is accessed via
485   a user system that has a display, such as a VGA or SVGA type, and a screen. Preferably, the screen is capable of displaying and rendering animation and images fairly rapidly. The user system typically has a pointing device such as a mouse, track ball, joystick, etc. that controls the movements of a cursor across the screen. The user's system also has an alphanumeric input device such as a keyboard, a touch screen or a character recognition
490   system that is used by the user for entering alphanumeric information and controlling keystroke sequences. The user's system preferably also has a processor that processes instructions and data to provide a graphical user interface to the WWW to the user. The graphical user interface used in the present invention is a modification of a WWW browser such as that shown in FIG. 4a. The user uses the pointing device and keyboard
495   to interact with the WWW browser displayed on a screen. The user system further has a storage component that has read only memory and random access memory therein, for storing instructions and data used by the processor. Also, the system has an input/output unit connected to the processor. The input/output unit communicates with the server under the control of the processor and user interactions with the WWW browser. The
500   connection of a separate processor-memory bus and a peripheral bus to the processor is presented as one example of a user system architecture; the present invention would work just as well with other system architectures such as the architecture that has a single bus connecting the processor, store and peripherals.

It will be apparent to those skilled in the art that many changes and
505   substitutions can be made to the system and method described herein without departing from the spirit and scope of the invention as defined by the appended claims.